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IVM 4

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Bitte vor Inbetriebnahme des Gerätes lesen!

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Please read the manual before using the equipment!

MODE D'EMPLOI ..... **p. 42**
Veuillez lire cette notice avant d'utiliser le système!

ISTRUZIONI PER L'USO ..... **p. 62**
Prima di utilizzare l'apparecchio, leggere il manuale!

MODO DE EMPLEO ..... **p. 82**
¡Sírvase leer el manual antes de utilizar el equipo!

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Favor leia este manual antes de usar o equipamento!

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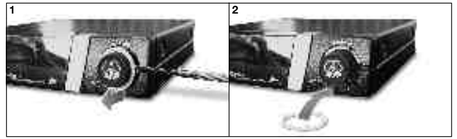
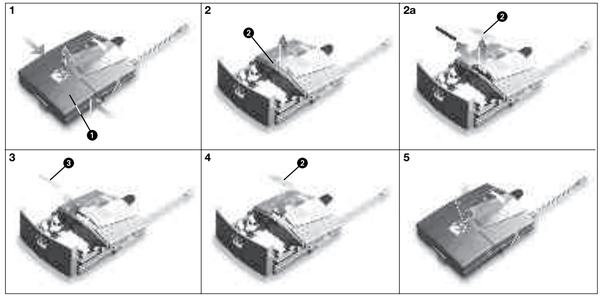


Fig. 8



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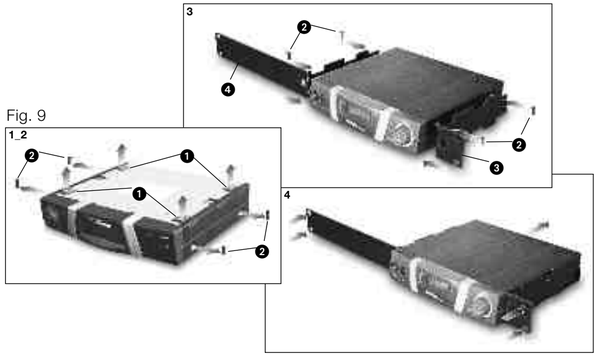

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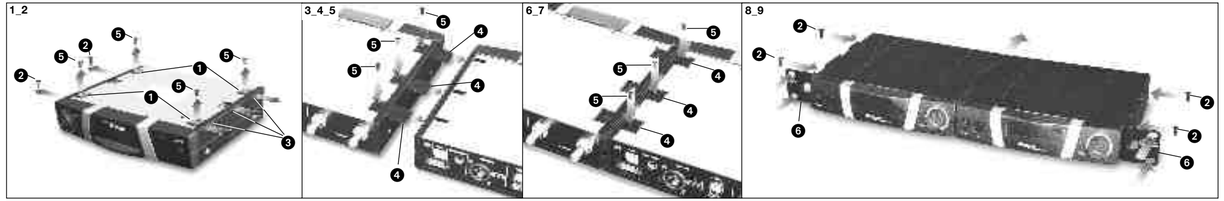

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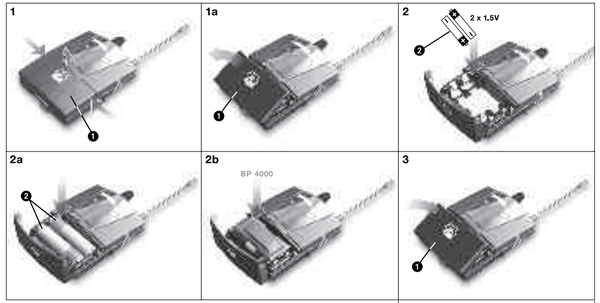

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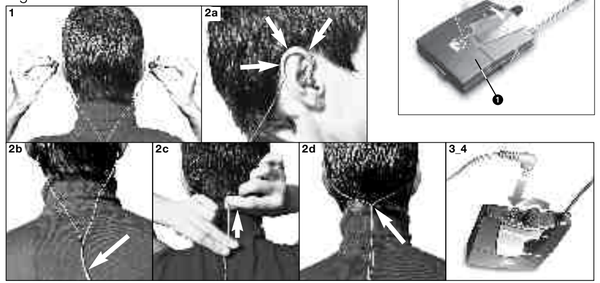

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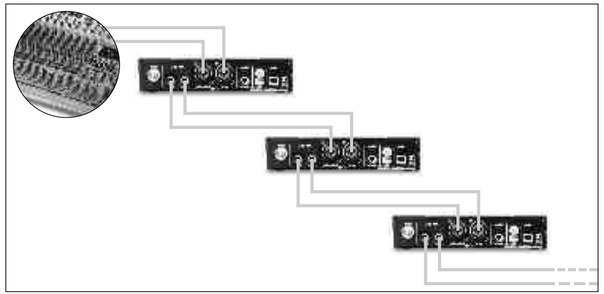
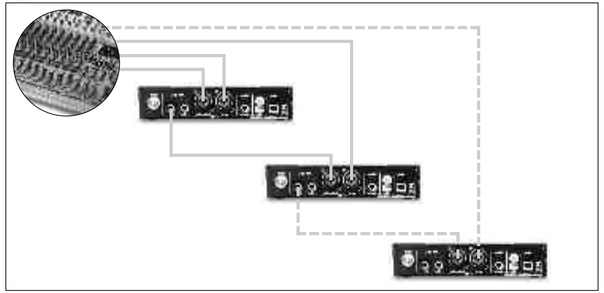


Fig. 14



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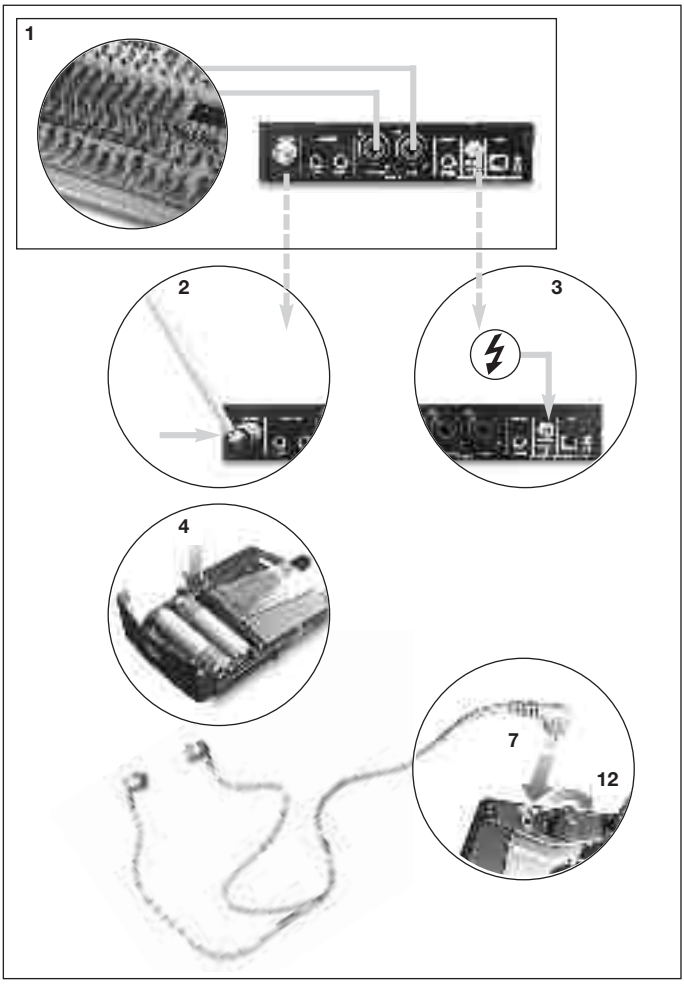
FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Parts 74 and 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded cables and I/O cords must be used for this equipment to comply with the relevant FCC regulations. Changes or modifications not expressly approved in writing by AKG Acoustics may void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



1. Make all audio connections.
2. Connect the antenna to the transmitter.
3. Connect the transmitter to power.
4. Insert the supplied batteries into the SPR 4 receiver.
5. Switch power to the receiver on and select the code for the country where you are going to operate your IVM 4 (section 3.4.4).
6. Select a clean frequency on the receiver ("AUTO" menu, section 3.4.5).
7. Connect the earbuds to the receiver.
8. Switch power to the transmitter on (section 3.5.4) and select the code for the country where you are going to operate your IVM 4 (section 3.5.6).
9. Tune the transmitter to the same frequency you selected on the receiver (section 3.5.7).
10. Set RF output on the transmitter (section 3.5.9).
11. Set input gain on the transmitter (section 3.5.11).
12. Set the desired volume for the earbuds.

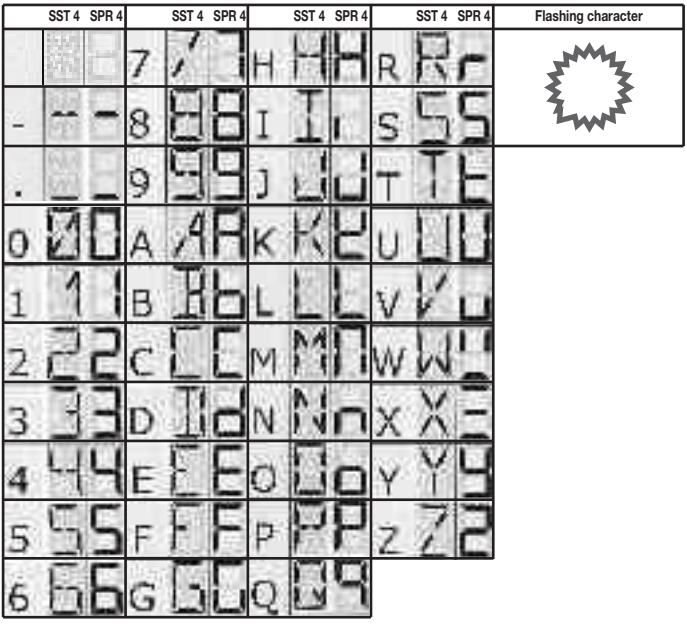
Symbols and Characters

Symbols Used in the Manual

The following symbols are used in the menu diagrams Figs. A1 through A26 on pages 121 to 136:

SETUP control on SST 4 transmitter	Jog switch on SPR 4 receiver	
		Long push (appropx. 2 secs.)
		Short push
		Turn all the way CW or CCW
		Turn all the way CCW
		Turn all the way CW

Display Characters



1.1 Safety

1. Do not spill any liquids on the equipment and do not drop any objects through the ventilation slots in the equipment.
2. The equipment may be used in dry rooms only.
3. The equipment may be opened, serviced, and repaired by authorized personnel only. The equipment contains no user-serviceable parts.
4. Before connecting the equipment to power, check that the AC mains voltage stated on the supplied power supply is identical to the AC mains voltage available where you will use the equipment.
5. Operate the equipment with the included power supply with an output voltage of 12 VDC only. Using adapters with an AC output and/or a different output voltage may cause serious damage to the unit.
6. If any solid object or liquid penetrates into the equipment, shut down the sound system immediately. Disconnect the power supply from the power outlet immediately and have the equipment checked by AKG service personnel.
7. If you will not use the equipment for a long period of time, disconnect the power supply from the power outlet. Please note that the equipment will not be fully isolated from power when you set the power switch to OFF.
8. Do not place the equipment near heat sources such as radiators, heating ducts, or amplifiers, etc. and do not expose it to direct sunlight, excessive dust, moisture, rain, mechanical vibrations, or shock.
9. To avoid hum or interference, route all audio lines, particularly those connected to the microphone inputs, away from power lines of any type. If you use cable ducts, be sure to use separate ducts for the audio lines.
10. Clean the equipment with a moistened (not wet) cloth only. Be sure to disconnect the power supply cable from the power outlet before cleaning the equipment! Never use caustic or scouring cleaners or cleaning agents containing alcohol or solvents since these may damage the enamel and plastic parts.
11. Use the equipment for the applications described in this manual only. AKG cannot accept any liability for damages resulting from improper handling or misuse.
12. In some countries, you may need a permit for operating your equipment. Be sure to contact the respective authority of the country where you are going to operate your equipment.
13. Any modifications made to the equipment without the express consent of AKG may lead to violations of telecommunications legislation voicing the operating permit.

1.2 High Volume Important!

Listening over headphones at excessive sound pressure levels, particularly over extended periods of time, may damage your hearing! Therefore, always set the volume as low as possible.

Table 1 is based on German research in occupational medicine and lists maximum exposure times for high volume levels before hearing damage occurs. Please note that local legislation where you will use your equipment may differ from the values in Table 1. Basically, you can double the maximum exposure time without damaging your ears by reducing the sound pressure level by 3 dB.

Sound pressure	Maximum exposure
85 dB(A)	8 hours
88 dB(A)	4 hours
91 dB(A)	2 hours
94 dB(A)	1 hour
97 dB(A)	30 minutes
100 dB(A)	15 minutes
120 dB (A)	**Threshold of pain**

Table 1: Maximum exposure to sound pressure levels

To protect your ears from damage, follow a few tips:

1. Set the volume just high enough to hear properly.

2. If you hear ringing or whistling sounds in your ears, fail to hear high notes (even momentarily), or hear less clearly for a while after a concert, you have been exposed to excessive sound pressure levels for too long. Consult an audiologist and use lower volume levels.
3. Have your ears checked by an audiologist on a regular basis.
4. To avoid infections, wipe the ear molds with a skin compatible antiseptic before and after use. Stop using the earbuds if they are causing great discomfort or infection.

1.3 Environment

1. The power supply will draw a small amount of current even when the equipment is switched off. To save energy, disconnect the power cable from the power outlet if you will leave the equipment unused for a long period of time.
2. When scrapping the equipment, separate the case, circuit boards, and cables, and dispose of all components in accordance with local waste disposal rules.

3. The packaging of the equipment is recyclabe. Dispose of the packaging in an appropriate container provided by the local waste collection/recycling entity and observe all local legislation relating to waste disposal and recycling.

2 Description

2.1 Introduction

Thank you for purchasing an AKG product. This Manual contains important instructions for setting up and operating your equipment. Please take a few minutes to **read the instructions below carefully before operating the equipment.** Please keep the Manual for future reference. Have fun and impress your audience!

2.2 Unpacking

- 1 SST 4 stereo transmitter
- 1 SPR 4 bodypack stereo receiver
- 1 pair of IP 2 earbuds with 3 pairs of ear molds
- 1 rod antenna
- 1 rack mounting kit
- 1 power supply
- 2 AA size dry batteries
- 1 12-pc. color coding kit

- Check that the packaging contains all of the items listed above. Should any of these items be missing, please contact your AKG dealer.

2.3 Optional Accessories

- SPC 4 wideband antenna combiner
- SRA 2 W passive wideband directional antenna
- RA 4000 W passive wideband omnidirectional antenna
- HPA 4000 headphone amplifier
- PSU 4000 central power supply
- HUB 4000 Q network interface
- MK PS antenna cables
- Front panel mounting kit for supplied antenna
- BP 4000 3-V rechargeable battery pack
- CU 4000 charger for 2 receivers or BP 4000 battery packs

2.4 SST 4 Stationary Transmitter

The SST 4 is a stationary stereo transmitter designed to transmit a mono, stereo, or dual-channel signal to the SPR 4 bodypack stereo receiver. It allows you to select one of 1200 frequencies within a 30-MHz band. In addition, it provides an integrated compressor, limiter, highpass filter, and a dedicated binaural room simulator. You can use the transmitter as a standalone unit or install it in a 19" rack using the supplied rack mounting kit.

2.4.1 Front Panel

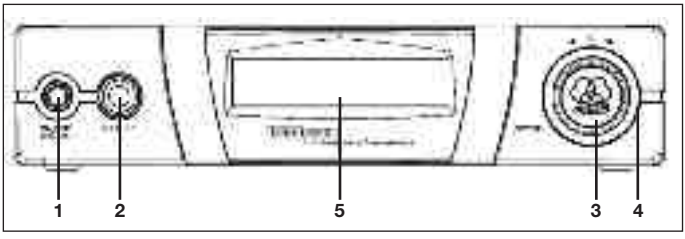


Fig. 1: Transmitter front panel and display.

Refer to fig. 1.

1 **ON/OFF VOLUME:** Combined on/off pushbutton switch and rotary volume control for the headphones output.
2 **HP OUT:** TRS ¼" jack for connecting a pair of headphones. The signal is identical to the audio signal fed to the RF section.
3 **SETUP:** Adjusts the transmitter parameters.
4 **Color code:** Replaceable ring for marking the transmitter.
5 **Display:** Refer to section 2.4.2 below.

2.4.2 Display

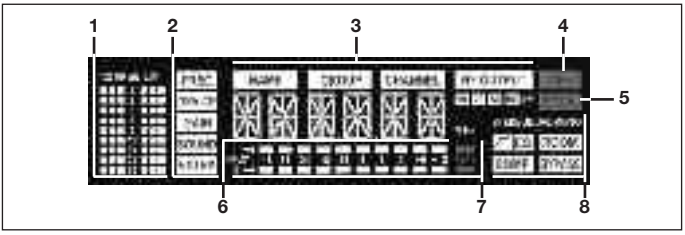


Fig. 2: LC display on transmitter front panel.

Refer to fig. 2.

The display indicates all operating parameters of the transmitter:

1 Compressor and limiter gain reduction.
2 Menus for frequency, transmitter name, input gain, audio processing, system settings.
3 Submenus for Preset (country code), Frequency Group, Subchannel, RF output.
4 OFF (red): Indicates the transmitter is off the air.
5 LOCK mode label (red): goes out in SETUP mode.
6 Alphanumeric display.
7 Audio input level bargraph and red PEAK LED
8 Audio functions: input mode, highpass filter, EQ, room simulation, compressor, bypass.

In SETUP mode, the currently active setup parameter will be flashing.

2.4.3 Rear Panel

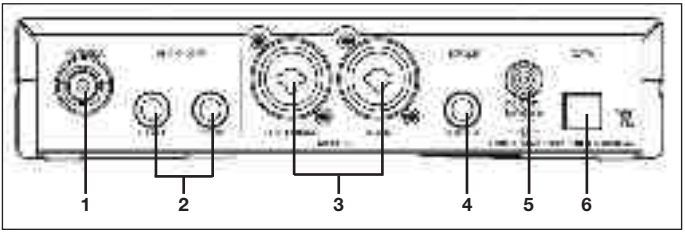


Fig. 3: Inputs and outputs on transmitter rear panel.

Refer to fig. 3.

1 **ANTENNA:** BNC antenna output.
2 **AUDIO LOOP L/CH1, R/CH2:** These two jacks are connected in parallel to the AUDIO IN jacks and carry the unprocessed input signal.
3 **AUDIO IN L/CH1/MONO, R/CH2:** Combined female XLR/1/4" jacks for feeding in a stereo or mono signal. The ¼" jacks accept both balanced and unbalanced cables.
4 **LINE OUT STEREO:** This TRS ¼" jack provides the processed audio signal. You can feed this signal, e.g., to an HPA 4000 headphone amplifier, an extra monitor amplifier for floor wedges, etc.
5 **DC ONLY:** Locking DC input for connecting the included power supply.
6 **DATA:** Interface for linking the transmitter to a HiQNet network for controlling the transmitter using a computer and HUB 4000 Q.

2.5 SPR 4 Bodypack Receiver

The SPR 4 bodypack receiver has been designed specifically for use with the SST 4 transmitter and IP 2 earbuds. You may, however, connect other earbuds to the receiver as well.
To power the receiver you can use either the two supplied dry batteries or the optional BP 4000 battery pack from AKG.

2.5.1 Controls

Refer to fig. 4.

1 **Headphones output:** TRS mini jack.
2 **Detented rotary control with integrated on/off switch:** Switches power to the receiver on and OFF and sets the volume of the earbud signal.
3 **Permanently attached flexible antenna.**
4 **Status LED**

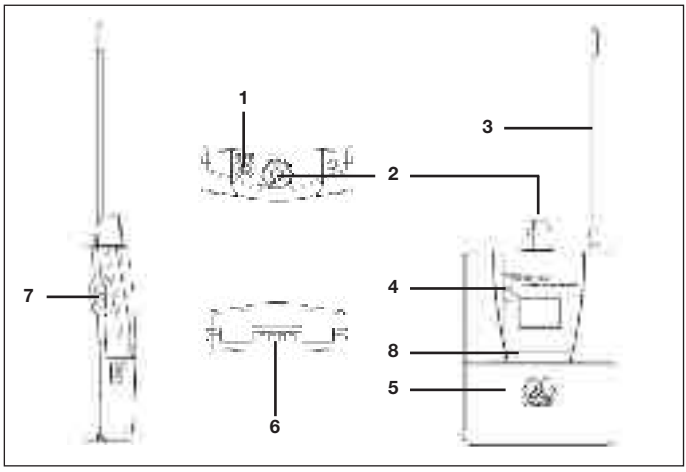


Fig. 4: SPR 4 bodypack receiver.

Refer to fig. 4.

5 **Battery compartment** accepting two AA size dry batteries (included) or an optional BP 4000 battery pack.
6 **Charging contacts** for charging the BP 4000 battery pack using the optional CU 4000 charger.
7 **Jog switch:** Sets the various parameters of the receiver.
8 **Color code:** Paper strip for identifying the receiver.

2.5.2 Display

Fig. 5: Display on SPR 4 bodypack receiver.

Refer to fig. 5.

The display indicates all operating parameters of the receiver:
1 Menus for Preset (country code), Frequency Group, Subchannel.
2 Alphanumeric display.
3 Menus for preset frequency, frequency in MHz, field scan, squelch.
4 RF level meter, limiter indicator, LOCK mode label.
5 Battery capacity, stereo and dual channel mode indicators.

2.6 IP 2 Earbuds

The IP 2 earbuds have been specifically designed for generating very high sound pressure levels. Their frequency range from 12 Hz to 23.5 kHz ensures pristine, high-end sound quality throughout the audible spectrum. The supplied ear molds (1) in various sizes attenuate unwanted ambient sound and guarantee optimum, secure fit.
The cable sheath (2) allows you to tighten the cable behind your neck.

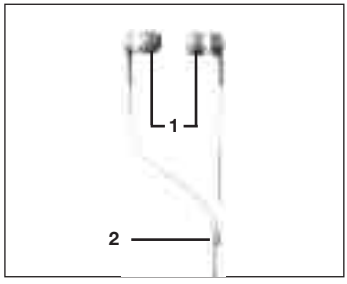
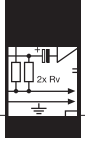


Fig. 6: IP 2 earbuds.



3 Setting Up

Important!

- **Prior to every soundcheck, verify that the transmitter and receiver are tuned to the same frequency.**

Note:

- The adjustment procedures for all transmitter and receiver parameters are diagrammatically shown in figs. A1 to A25 on pages 122 through 136.

3.1 Color Coding

- If you use several IVM 4s simultaneously, mark the transmitter and receiver of each channel with the same color.

3.1.1 Transmitter
Refer to fig. 7.

1. Use a small screwdriver or similar object to lever the color code ring out of its seat.
2. Align the pins and positioning lug on the rear of the new color code ring with the corresponding openings on the transmitter and push the color code ring home.

3.1.2 Receiver
Refer to fig. 8.

1. Open the battery compartment (1).
2. Remove the color code cover (2) and remove the color code paper strip.
3. Remove the desired new paper strip (3) from the color code sheet and place the paper strip (3) in the groove in the transmitter body.
4. Replace the color code cover (2).
5. Close the battery compartment (1).

3.2 Placing the Transmitter

Reflections off metal parts, walls, ceilings, etc. or the shadow effects of musicians and other people may weaken or cancel the direct transmitter signal.
For best results, place the transmitter or remote antenna as follows:

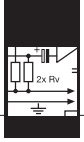
1. Place the transmitter/antenna near the performance area (stage). Make sure, though, that the receiver will never get any closer to the transmitter than 10 ft (3 m). Optimum separation is 16 ft. (5 m).
2. Place the transmitter/antenna at least 5 ft. (1.5 m) away from any big metal objects, walls, scaffolding, ceilings, etc.
3. Place the transmitter at least 10 ft. (3 m) away from any wireless microphone receiver (e.g., an SR 4000) in order to prevent crosstalk from the in-ear monitor system into wireless microphone channels.

3.3 Rack Mounting the Transmitter
3.3.1 Rack Mounting a Single Transmitter
Refer to fig. 9.

1. Unscrew the four rubber feet (1) from the transmitter bottom panel.
2. Unscrew the two fixing screws (2) from each side panel.
3. Use the fixing screws (2) to screw the short bracket (3) to one side panel and the long bracket (4) to the other side panel. The brackets are contained in the supplied rack mounting kit.
4. Install the transmitter in your rack.

3.3.2 Rack Mounting Two Transmitters Side by Side
Refer to fig. 10.

1. Unscrew the four rubber feet (1) from each transmitter's bottom panel and remove the screws (5) from the rubber feet (1).
2. Unscrew the two fixing screws (2) from the right-hand side panel of one transmitter and from the left-hand side panel of the other transmitter.
3. Remove the plastic covers (3) from the side panels with the fixing screws (2) still on.
4. Insert one connecting strip (4) into each free slot in the side panel of the first transmitter, making sure to align the hole in each connecting strip (4) with the appropriate threaded hole in the transmitter bottom panel.
5. Fix the three connecting strips (4) on the first transmitter using three of the screws (5) you removed from the rubber feet.
6. To join the two transmitters, slide the connecting strips (4) on the first transmitter through the free slots in the side panel of the second transmitter. Make sure to align the hole in each connecting strip (4) with the appropriate threaded hole in the bottom panel of the second transmitter.
7. Fix the connecting strips (4) on the second transmitter using the three screws (5) you removed from the rubber feet.
8. Screw a short bracket (6) to the outer side panel of each transmitter using for each bracket two of the screws (2) you removed from the transmitter side panels.
9. Install the transmitters in your rack.



1. Open the battery compartment (1).
2. Insert the two supplied batteries (2) into the battery compartment, aligning the batteries with the polarity symbols inside the battery compartment.
   If you insert the batteries the wrong way, the receiver will not be powered.
3. Close the battery compartment (1).

3.4 Setting Up the Receiver

3.4.1 Inserting Batteries

Refer to fig. 11.

- Alternatively to the supplied dry batteries, you may use the optional BP 4000 battery pack from AKG. The BP 4000 fits into the battery compartment in the correct orientation only, so you cannot insert it the wrong way.

Note:

- **Never use standard rechargeable batteries! These may damage the receiver if the charging contacts are shorted and will provide no meaningful remaining-battery-life indication. AKG will accept no liability for any damage resulting from the use of standard rechargeable batteries.**

Important!

3.4.2 Powering Up (LOCK/SETUP Modes)

Powering Up:

- Set the rotary control to position 1 or higher.
  - Status LED is lit green: power to receiver is on, radio link operating.
  - Status LED is lit red: power to receiver is off or batteries will be dead in less than 60 minutes.
  - Status LED remains dark: no batteries or dead batteries inside battery compartment.

- When powering up for the first time, the first thing you need to do is select the appropriate Preset for the country where you are going to use your IVM 4. Read on in section 3.4.4.

- When powering up again later, the receiver will automatically come on in LOCK mode. The display will indicate the selected frequency in MHz for about 2 seconds, the battery type ("BATBAT" – two dry batteries, "ACCACC" – BP 4000) for about 2 seconds, and finally the frequency as a Preset Subchannel.

Refer to fig. A1 on page 124.

LOCK Mode:

The receiver is electronically locked so you cannot make any adjustments. The "LOCK" label is lit on the display.

- You can scroll through the following status screens:
  - **Preset** (comes up only if a Preset has been saved): Carrier frequency shown as a Subchannel number within a Frequency Group.
  - **Frequency:** Carrier frequency in MHz. (This screen is always available, even if no Preset has been saved.)
  - **Battery:** Percent battery capacity. (This screen is only available if you are using a BP 4000 battery pack.)

SETUP Mode:

In SETUP mode, the electronic lock is disabled so you can adjust all receiver parameters. The "LOCK" label is not shown.

Selecting Modes:

- To toggle between LOCK and SETUP modes, hold down the Jog switch for about 2 seconds.

3.4.3 Powering Down

- Set the rotary control to the "OFF" position.

3.4.4 Selecting the Country Preset

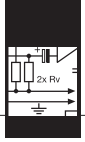
1. When you switch power to the receiver on for the first time, the "NAME" label and the name of the first programmed Preset will be flashing.

Refer to fig. A2 on page 124.

Note:

- To select the appropriate Preset for a specific country (e.g., on tour) later on, hold down the Jog switch and set the rotary control to position 1 or higher.

2. Turn the Jog switch CW or CCW to select the desired Preset (country code).
3. Press the Jog switch briefly. The receiver will automatically indicate the first Subchannel ("CH") of the first Frequency Group in memory. The receiver is in SETUP mode so you can easily select a different frequency.



3.4.5 Automatic Frequency Selection
Refer to figs. A3 and A 4.1 on pages 124 and 125.

1. In SETUP mode, turn the Jog control CW or CCW as many times as needed to call up the "AUTO" and "GRP" labels on the display.
2. "NO CH" flashing: Turn the Jog control CW or CCW to select the number of Subchannels you need (e.g., "14" for a 14-channel system). This makes sure that the system will always be able to find enough clean frequencies within the same Frequency Group.
3. The receiver will automatically find a Group with the selected number of clean frequencies within the selected Preset and tune to the first clean frequency.
4. If the receiver finds no clean frequency, you can select "REPEAT" to try again.

3.4.6 Manual Frequency Selection
A. Preset Screen:
Refer to fig. A4.2 on page 125.

1. In SETUP mode, turn the Jog control CW or CCW as many times as needed to call up the Preset screen.
2. "NO CH" flashing: Turn the Jog control CW or CCW to select the number of subchannels you need (e.g., "8" for an 8-channel system). This makes sure that the system will always be able to find enough clean frequencies within the same Frequency Group.

B. Frequency Screen:
Refer to fig. A5 on page 126.

- To increase the frequency by 25 kHz, turn the jog switch briefly CW.
  To decrease the frequency by 25 kHz, turn the jog switch briefly CCW.

3.4.7 Connecting Earbuds
Refer to fig. 12.

1. Insert the earbuds into your ears. The earbuds are marked "L" (left) and "R" (right).
2. Route the cable above your ears to the back of your head and slide the cable sheath up far enough to make the cable rest snugly against your neck.
3. Plug the mini jack connector into the HP OUT jack on the receiver.
4. Use the rotary control on the receiver to set the desired volume.
5. If the ear molds should fit less than perfectly, try the extra ear molds supplied with your IVM 4.

3.5 Setting Up the Transmitter
Important!

- **To avoid the risk of electric shock, install the antenna and make all audio connections before connecting the transmitter to power.**

3.5.1 Antenna

- Connect the supplied rod antenna to the ANTENNA socket on the transmitter rear panel and lock the BNC connector.

Important!

- **If you use a remote antenna, please note that these antennas may boost their RF output (ERP) in their preferred directions. In order to keep RF output within legal limits, make sure to use antenna cables of the correct length for each type of cable, e.g., RG58: 16 ft. (5 m) for an RA 4000 W or 33 ft. (10 m) for an SRA 2 W.**

3.5.2 Audio Connections
Note:

- The AUDIO IN sockets accept both XLR connectors and ¼" jack plugs.

Mono Monitor Signal:

- If only a single mono monitor signal is available, e.g. at an AUX output, connect the appropriate output on your mixer to the L/CH1/MONO jack on the transmitter rear panel.

Note:

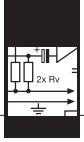
- Mono signals will not be transmitted in mono unless the room simulator is deactivated. (The room simulator will generate a stereo signal from any mono input signal.)

Stereo Monitor Signal:

- Connect the stereo monitor outputs on your mixer to the two AUDIO IN jacks on the transmitter rear panel.

Two Independent Monitor Signals:

- If your mixer can provide two different monitor signals (e.g., AUX 1 for the soloist's microphone and keyboard, AUX 2 for the entire band), connect AUX 1 to L/CH1/MONO and AUX 2 to R/CH 2.



AUDIO LOOP:

The AUDIO LOOP outputs carry the unprocessed audio input signal. You can use these outputs as follows:

A (refer to fig. 13):
You can feed the same stereo monitor signal to one or more SST 4 transmitters. This allows you to set the sound, compression, etc. individually for each musician. Fig. 13 shows a wiring example.

1. Connect the stereo monitor outputs on your mixer to the two AUDIO IN jacks on the rear panel of the first transmitter.
2. Connect the AUDIO LOOP jacks on the first transmitter to the AUDIO IN jacks on the next transmitter.
3. Repeat step 2 for all other transmitters.
4. Set all transmitters to STEREO mode.

See section 4.1.2/Mode.

B (refer to fig. 14):
You can use one channel to distribute the same mono monitor mix to several SST 4s while feeding a personalized monitor signal for each musician to the other input channel on each SST 4. This allows each musician to set their own balance between the two signals on the receiver. Fig. 14 shows a wiring example.

1. Set all transmitters and receivers to DUAL mode.
2. Explain to the musicians how to set the balance between the band mix and their own signals on the receiver.

See section 4.1.2/Mode.

C – other applications:
You can also feed the AUDIO LOOP signal to a separate amplifier for stage monitors, a headphone amplifier, or a recording device.

LINE OUT STEREO:

LINE OUT STEREO is an alternative output for connecting a headphone amplifier or recording device. This jack carries the processed audio signal.

3.5.3 Connecting to Power

Important!

- **Check that the AC mains voltage stated on the included power supply is identical to the AC mains voltage available where you will use your system. Using the power supply with a different AC voltage may cause damage to the unit.**

1. Plug the feeder cable on the included power supply into the DC ONLY socket on the transmitter rear panel and screw down the DC connector.
2. Plug the power cable on the power supply into a convenient power outlet.

3.5.4 Powering Up (LOCK/SETUP Modes)

- Hold down the ON/OFF control for about 2 seconds.

- When powering up for the first time, the first thing you need to do is select the appropriate Preset for the country where you are going to use your IVM 4. Read on in section 3.5.6.

- When powering up again later, the transmitter will automatically come on in LOCK mode.

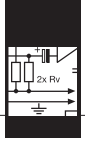
LOCK Mode:

The transmitter is electronically locked so you cannot make any adjustments. The red "LOCK" label is lit on the display.

- You can scroll through the following status screens:
  - **Preset** (comes up only if a Preset has been saved): Carrier frequency shown as a Subchannel number within a Frequency Group.
  - **Frequency:** Carrier frequency in MHz. (This screen is always available, even if no Preset has been saved.)
  - **"DEVICE":** Current receiver name (comes up only if you have previously named the receiver)

SETUP Mode:

In SETUP mode, the electronic lock is disabled so you can adjust all transmitter parameters. The "LOCK" label is not shown.



3 Setting Up

Selecting Modes:

- To toggle between LOCK and SETUP modes, hold down SETUP for about 2 seconds.

3.5.5 Powering Down

- Hold down the ON/OFF control until the display goes dark.

3.5.6 Selecting the Country Preset
Refer to fig. A6 on page 126.

1. When you switch power to the transmitter on for the first time, the "NAME" label and the name of the first programmed Preset will be flashing.

Note:

- In order to select the appropriate Preset for a specific country (e.g., on tour) later on,
  A: Switch power to the transmitter on and press SETUP while the frequency is displayed in MHz,
  OR
  B: Switch power to the transmitter off and hold down SETUP for about 2 seconds.

2. Turn SETUP CW or CCW to select the desired Preset (country code).
3. Press SETUP briefly. The transmitter will automatically indicate the first Subchannel ("CHANNEL") of the first Frequency Group in memory. The transmitter is in SETUP mode so you can easily select a different frequency.
4. Continue with step 2 in section 3.5.7.

3.5.7 Selecting Frequencies from the Preset Screen
Refer to fig. A6 on page 126.

1. Switch the transmitter to SETUP mode.
2. If the display shows the frequency in MHz, briefly turn SETUP CCW to call up the Preset screen.
3. Select a Frequency Group ("GROUP") and a frequency ("CHANNEL") within this Group.
4. Select the RF OUTPUT level. (Refer to section 3.5.9.)
5. Save your setting ("SAVE—Y").

3.5.8 Selecting Frequencies from the Frequency Screen
Refer to fig. A7 on page 127.

1. Switch the transmitter to SETUP mode.
2. If the display shows the Preset screen, briefly turn SETUP CCW to call up the frequency screen.
3. You can select the frequency in 25 MHz increments.
4. Select the RF OUTPUT. (Refer to section 3.5.9.)
5. Save your setting ("SAVE—Y").

3.5.9 Setting RF Output

- You can select the transmitter's RF output level from the Preset screen (section 3.5.7) or the frequency screen (section 3.5.8) after having selected a frequency.

Refer to fig. A6 on page 126.

1. From the Preset or frequency screen, press SETUP briefly as many times as needed to make the "RF OUTPUT" label flash.
2. Set RF output to the desired level between 10 mW and 100 mW. When "OFF" is lit, no signal will be transmitted.

Note:

- The approved maximum RF output depends on local legislation. Therefore, you can only choose from the legally approved values stored in each Preset.

3. Save your setting ("SAVE—Y").

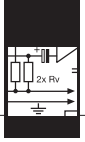
3.5.10 Naming the Transmitter
Refer to fig. A8 on page 127.

The default transmitter name ("DEVICE") is "IVM—4".

- You can change this name at any time in SETUP mode, from the "DEVICE" screen.

3.5.11 Setting Input Gain
Refer to fig. A9 on page 128.

- The control range is -20 dB to +20 dB.
- To save the selected value, press SETUP briefly.



3.6 Multichannel Systems

Important!

- **Do not operate two or more wireless channels on the same frequency at the same time and location. This would cause unwanted noise due to radio interference.**

1. Select the same "NAME" (country code) and "GROUP" on all transmitters and receivers.

Note:

- The designation of each "GROUP" comprises a number (designating the frequency band) and a letter or another number (designating the Frequency Group as such).
  Groups with a number and a letter have been optimized for systems with devices operating within the same frequency band.
  Groups with two numbers have been optimized for systems with devices operating in neighboring frequency bands.

Important!

- **If you use devices in neighboring frequency bands, select the same Frequency Group (the same number after the dot) on all these devices. Neighboring frequency bands are 5/6 and 7/8.**
- **Switch ON any radio microphones, personal monitor transmitters, etc. (including even those made by other manufacturers) except for your IVM 4 system! This is the only way to make sure the receiver will find frequencies that will be free of any mutual interference during the performance.**

2. On the first receiver, find the nearest clean Subchannel of the selected Frequency Group:

Refer to fig. A4.1 on page 125.

- In SETUP mode, turn the Jog switch CW or CCW as many times as needed to call up the "AUTO" and "CH" labels on the display.
- Select the desired Frequency Group.
- Press the Jog control to start the search for clean frequencies.

Note:

- Clean frequencies are frequencies where the receiver finds no RF signal or an RF signal whose level is lower than the set threshold.

3. Tune the transmitter assigned to the first receiver to the same frequency that you selected on the receiver and switch power to the transmitter on.

Refer to fig. A6 on page 126.

4. Repeat steps 2 and 3 for each IVM 4 channel.

4 Advanced Functions

4.1 Transmitter

In addition to the basic functions described in section 3 above, the SST 4 transmitter provides a number of advanced functions that allow you to "tweak" the monitor signal to satisfy each user.

4.1.1 SOUND

The SOUND menu includes four sound processing screens. Note that these will not be available when "BYPASS" is active.

Note:

- Each screen provides up to ten preprogrammed Settings. Each Setting is followed by an "OFF" option so you can make an A/B comparison of the sound against the unprocessed signal.
- To deactivate a SOUND function, choose "OFF".

The sound screens appear in the following order:

Highpass Filter:

- The highpass filter lets you brighten up a dull sound or suppress low-frequency interference, e.g., from a bass amp.

Refer to fig. A10 on page 128.

- You can set the highpass filter corner frequency from 10 Hz to 300 Hz on a logarithmic scale.
- To save your setting, press SETUP briefly.

EQ:

Refer to fig. A11 on page 128.

- The EQ presets let you shape the sound to suit your preferences (e.g., more clarity, less harsh sound).
  The following settings are available:

  - **"EQ OFF":** EQ deactivated.
  - **"EQ IP2":** neutral sound optimized for supplied IP 2 earbuds.
  - **"CLEAR 1-3":** Low-mid attenuation in the critical range from 125 Hz to 250 Hz for added clarity.
    Recommended for repairing indifferent, muddy sound.
  - **"SOFT 1-3":** Upper-mid attenuation between 3.4 kHz and 6.8 kHz for a mellow sound.
    Recommended for repairing excessively harsh sound with exaggerated sibilance and cymbal crashes.
  - **"WARM 1-3":** Special processing in the ranges around 150 Hz and from 3.4 kHz to 6.8 kHz for a warm, pleasant sound.

- To save the selected Setting, press SETUP briefly.

ROOM:

Specifically designed for in-ear monitoring, the binaural room simulator restores a natural sonic environment. This enables the artist to localize their own signal more easily in the mix and hear all instruments much more clearly.

Refer to fig. A12 on page 129.

- The following preprogrammed Settings are available:
  - **"RS OFF":** no room simulation.
  - **"CLOSE" 1 to 3:** close-in monitors
  - **"NATUR" 1 to 3:** natural sound
  - **"WIDE" 1 to 3:** open sound
- To save the selected Setting, press SETUP briefly.

Note:

- This screen is not available in DUAL mode!

COMP:

The compressor has been designed by AKG on the model of the top-of-the-line dbx mastering compressors. It maintains all the nuances of the original signal and provides inaudible gain reduction.

Refer to fig. A13 on page 129.

- The following preprogrammed Settings are available:
  - **"CO OFF":** compressor deactivated.
  - **"SOFT" 1 to 3:** very soft, gentle, completely inaudible compression
  - **"MED" 1 to 3:** standard compression ratio around 2:1 for gentle enhancement of intelligibility and loudness, completely inaudible gain control.

- "HARD" 1 to 3: aggressive compression for massive boost of punch and loudness.

- To save the selected Setting, press SETUP briefly.

- In DUAL mode, the compressor will control channel 1 gain only!

Note:

- To activate the bypass, select "ON". All SOUND Settings will be deactivated.
- To deactivate the bypass, select "OFF". The SOUND Settings will be activated.

BYPASS:
Refer to fig. A14 on page 129.

The EXTRA menu provides six submenus that appear in the following order:

4.1.2 EXTRA
Refer to fig. A15 (p. 130).

- You can choose from the following modes:
  - **"STEREO"** for stereo input signals.
  - **"DUAL"** for two independent input signals.

MODE:
Refer to fig. A16 on page 130.

- In DUAL mode, no room simulation is available and the compressor will control channel 1 only.

Note:

  - **"MONO"** for mono input signals.

- Mono signals will not be transmitted in mono unless the room simulator is deactivated.

Note:

- You can choose from the following modes:
  - **"AUTO":** When the transmitter is in SETUP mode and nobody touches a control for approx. three minutes, the transmitter will automatically switch to LOCK mode. (You can still switch to LOCK mode manually at any time.)
  - **"MANUAL":** You can only lock the setup menus manually.

LOCK:
Refer to fig. A17 on page 131.

- You can set the brightness of the display from 1 (dark) to 10 (bright). This setting is only active in LOCK mode.

LIGHT:
Refer to fig. A18 on page 131.

- You can call up the following details about your transmitter in this order:
  - **Firmware version** (e.g., "F 3.09")
  - **Frequency band** (e.g., "B 5.E5")
  - **Preset version** (e.g., "P 1.00")
  - **Audio preset version** (e.g., "A 03.00")

INFO:
Refer to fig. A19 on page 132.

- You can reset all parameters to their default settings ("YES") or leave them untouched ("NO").

RESET:
Refer to fig. A20 on page 132.

- Press SETUP briefly. The display will revert to the EXTRA screen.

ESCAPE:
Refer to fig. A21 on page 132.

4.2 Receiver

In addition to the basic functions described in section 3 above, the SPR 4 receiver provides a number of advanced functions.

4.2.1 Finding Interference Frequencies

The Field Scan function automatically searches the receiver's entire frequency band for interference frequencies.
The frequency spacing for the automatic scan is 100 kHz. Any frequency whose field strength exceeds the set threshold is defined as an interference frequency and saved in a scan list. Once the can is completed, you can retrieve the scan list.
The receiver can store a maximum of seven interference frequencies or three interference ranges with their upper and lower frequency limits. As soon as the end of the examined frequency range (Stop frequency) is reached or the scan list is full, the scan will stop automatically.

Refer to fig. A22 on page 133.

1. In SETUP mode, turn the Jog control CW or CCW to call up the "FIELD" screen.
2. To start the scan, select "RUN"; to return to the "FIELD" screen, select "ESCAPE".
3. During the scan, the audio output is muted and the display indicates the frequencies in MHz as they are scanned.
4. Once the scan has reached the Stop frequency, the scan stops automatically and the message "READY" appears on the display. If no interference frequencies were found, the display will change to "CLEAN".
5. To scroll through the scan list, press the Jog control briefly and turn the Jog control CW briefly.
   The last interference frequency is followed by the "ESCAPE" option (see step 2 above).

Interrupting the scan:

- You can interrupt the scan at any time by pressing the Jog control briefly. The message "PAUSE" will appear on the display.

1. To scroll through the scan list, press the Jog control briefly and turn the Jog control CW briefly.
   The last interference frequency is followed by the "CONT." option.
2. a) To resume the scan, press the Jog control briefly. The receiver will scan the rest of the frequency band.
   b) To stop the scan, turn the Jog control CW briefly. This will bring up the "ESCAPE" option.

Memory overflow:

If the scan list is full before the Stop frequency has been reached, the scan will stop automatically and the display will change to "FULL".

- Follow steps 1 through 4 in the paragraph on "Interrupting the scan" above.

4.2.2 Setting the Squelch Threshold

Refer to fig. A23 on page 134.

- You can set the squelch threshold from -80 dB to -102 dB.

4.2.3 Hearing Protection Limiter

Refer to fig. A24 on page 134.

The hearing protection limiter places an absolute ceiling on the receiver output level. Please note that the actual sound pressure at the ears will depend on the type of earbuds used.

1. You can switch the limiter "ON" and "OFF".
2. To save your selection, press the Jog switch briefly.

Important!

- **To avoid hearing damage, always leave the hearing protection limiter ON.**
- **The sensitivity of the human hearing system to aural stress differs from person to person. Therefore, AKG will not assume any liability for any damage to the user's hearing.**

4.2.4 Balance

Refer to fig. A25 on page 135.

1. Set the receiver to STEREO or DUAL mode.
2. In STEREO mode, you can set the balance between the left and right audio channels. The display will indicate the volume of the louder channel (L or R) in 12 increments.
   "L R 00" means the volume of both channels is the same.
   In DUAL mode, you can set the balance between channel 1 ("CH1") and channel 2 ("CH2"). The display will indicate the volume of the louder channel in 12 increments.
   "CH- 00" means the volume of both channels is the same.
3. To save your selection, press the Jog switch briefly.

Note:

- You can call up the balance screen even in LOCK mode by pressing the Jog switch briefly. You can set and save the balance between the left and right channels or channels 1 and 2. However, you cannot toggle between STEREO and DUAL modes.

4 Advanced Functions

- You can call up the following details about your transmitter in this order:
  - **Firmware version** (e.g., "F 2.30")
  - **Frequency band** (e.g., "B 7.A5")
  - **Preset version** (e.g., "P 1.76")

4.2.5 Info
Refer to fig. A26 on page 136.

5 Cleaning

- To clean the transmitter and receiver surfaces, use a soft cloth moistened with water.

5.1 Transmitter and Receiver

1. Use a soft cloth moistened with water to clean the earbud surfaces.
2. To prevent infections, clean the ear molds with a skin compatible antiseptic before and after use.

5.2 Earbuds

6 Troubleshooting

Probelm	Possible Cause	Remedy
No sound.	1. Power supply is not connected to transmitter and/or power outlet. 2. Transmitter/receiver is OFF. 3. Transmitter is not connected to mixer. 4. Transmitter is tuned to different frequency than receiver. 5. Receiver batteries are not inserted properly. 6. Receiver batteries/battery pack dead. 7. Transmitter is too far away from receiver or squelch threshold setting is too high. 8. Obstructions between transmitter and receiver. 9. Transmitter too close to metal objects.	1. Connect power supply to transmitter and/or power outlet. 2. Switch transmitter/receiver ON. 3. Connect mixer output to transmitter input. 4. Tune transmitter and receiver to same frequency. 5. Insert batteries conforming to "+" and "-" marks. 6. Replace batteries/charge battery pack. 7. Move closer to transmitter or choose lower squelch threshold setting. 8. Remove obstructions. 9. Remove objects or place transmitter further away.
Noise, crackling, unwanted signals.	1. Antenna location. 2. Interference from other wireless systems, TV, radio, CB radios, or defective electrical appliances or installations.	1. Relocate transmitter or antenna. 2. Switch off interference sources or defective appliances or tune transmitter and receiver to a different frequency; have electrical installation checked.
Distortion.	• Interference from other wireless systems, TV, radio, CB radios, or defective electrical appliances or installations.	• Switch off interference sources or defective appliances or tune transmitter and receiver to a different frequency; have electrical installation checked.
Momentary loss of sound ("dropouts") at some spots within performance area.	• Antenna location.	• Relocate transmitter or antenna. If dead spots persist, mark and avoid them.

Receiver Error Messages and Warnings		Problem	Remedy
Receiver	"REC.ACC"	• When charging BP 4000, a recommended RECOVERY cycle was not run. Remaining battery life is not indicated.	• Press Jog switch briefly and run RECOVERY cycle next time you charge BP 4000.
	"ERR.BAT"	• Volume too high and battery voltage too low. SPR 4 limiter is automatically activated to avoid premature power-down.	• Press Jog switch briefly to reset limiter to last active mode. Reduce volume or replace batteries/charge battery pack.
	"LO BAT"	• Battery/BP 4000 capacity lower than 20%.	• Replace batteries/ charge BP 4000.
	"NO RF"	1. Received signal level was too low for a moment (dropout). 2. Radio signal still too weak after 10 seconds, warning comes up again.	1. Press Jog switch briefly. (Warning disappears.) 2. Relocate transmitter/antenna. If dropouts persist, mark and avoid critical spots.
Transmitter and receiver	All other error messages ("ERR.XXX")	• Internal error.	1. Switch power to receiver OFF and back ON after about 10 seconds. 2. Contact your AKG dealer as soon as possible, even if problem appears to be corrected.

7.1 IVM 4

Carrier frequency bands:	500-530, 570-600, 790-820, 835-865 MHz
RF bandwidth:	30 MHz / 25 kHz
Modulation:	FM, MPX Stereo
Audio formats:	stereo, mono, dual channel (selectable)
Audio bandwidth:	35 Hz to 20 kHz
THD:	typ. < 0.8%
Signal/noise ratio:	> 90 dBA
Operating temperature:	-10°C to +50°C

7.2 SST 4 Transmitter

Clean carriers per frequency band: 14	
RF output:	10, 20, 50, 100 mW (selectable, depending on local legislation)
Antenna:	50-ohm rod antenna with BNC connector
Audio input:	2 x combined XLR/1/4" jacks, balanced, 10 dBV max.
Input gain and limiter:	digitally controlled
Audio processor:	24-bit DSP
Audio outputs:	AUDIO LOOP: 2 x ¼" jacks, directly connected to audio input LINE OUT: TRS ¼" jack, connected to audio section output, 0 dBV max. HP OUT: 18 Hz to 20 kHz, THD < 0.5%, maximum power 2 x 500 mW into 16 to 600 ohms
Power supply:	12 V DC, 0.5 A
Size:	200 x 190 x 44 mm (7.8 x 1.7 x 7.4 in.)
Weight:	1070 g (2.4 lbs.)

7.3 SPR 4 Receiver

Squelch threshold:	-102 dBm to -80 dBm, selectable
Audio bandwidth:	35 Hz to 15 kHz
THD at 1 kHz:	< 0.8%
Channel separation:	> 40 dB
Signal/noise ratio:	> 90 dBA
Audio output:	TRS mini jack
Controls:	Jog switch, volume control, backlit LCD, status LED
Power supply:	2 AA size dry batteries or BP 4000 battery pack
Battery life:	6 to 8 hours
Size:	70 x 90 x 25 mm (2.8 x 3.5 x 1 in.)
Net weight inc. batteries:	165 g (5.8 oz.)

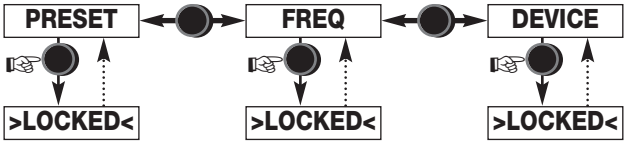
7.4 IP 2 Earbuds

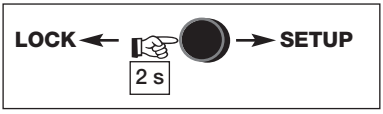
Frequency range:	12 Hz to 35 kHz
Sensitivity:	121 dB SPL/V
Power handling capability:	25 mW
Rated impedance:	16 ohms
Weight (inc. cable):	3 g (0.1 oz.)
Connecting cable:	1.5 m (5 ft.) long, Y connected
Connector:	TRS mini jack plug

7.5 Standards

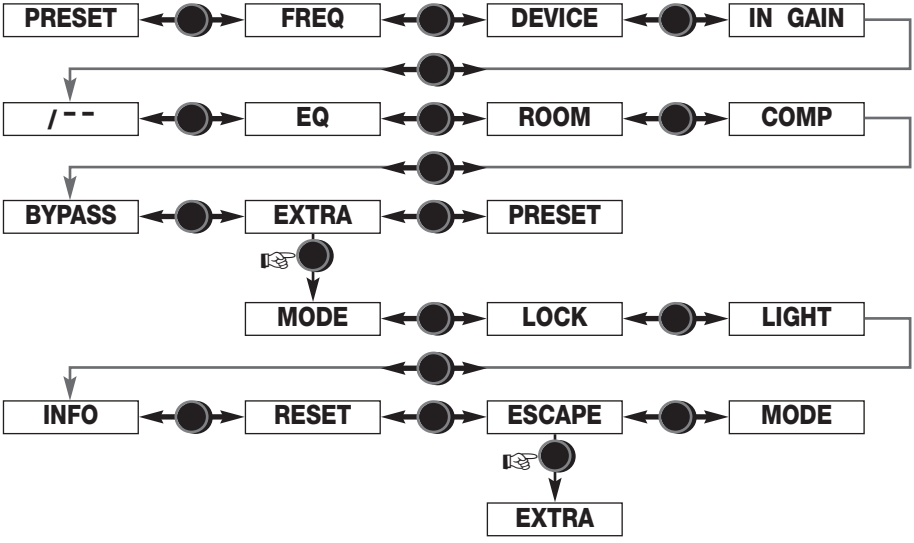
This product conforms to the standards listed in the Declaration of Conformity. To order a free copy of the Declaration of Conformity, visit http://www.akg.com or contact sales@akg.com.

SST 4 / LOCK





SST 4 / MAIN MENU



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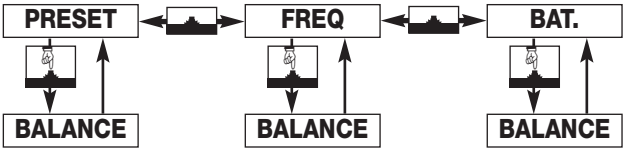

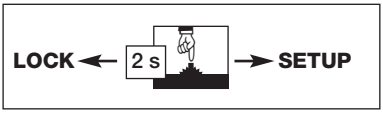

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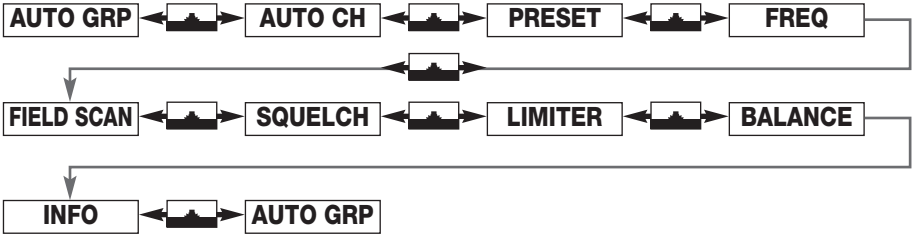


Fig. A1 / 3.4.2

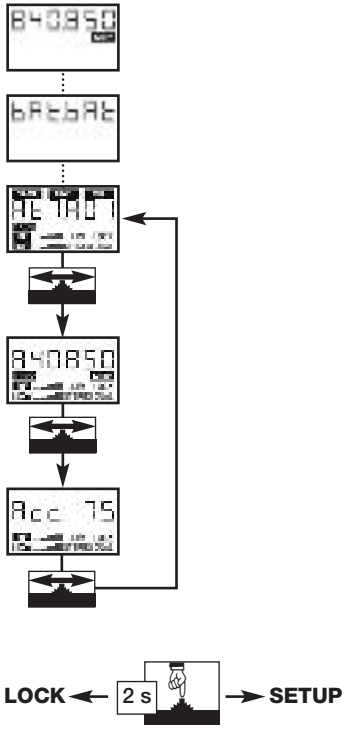


Fig. A2 / 3.4.4

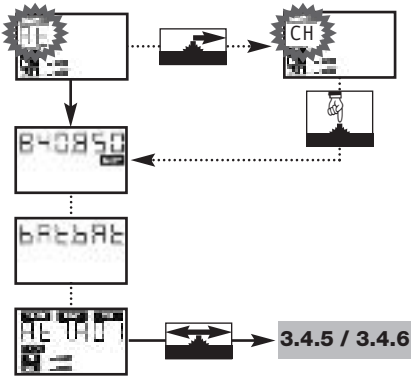


Fig. A3 / 3.4.5

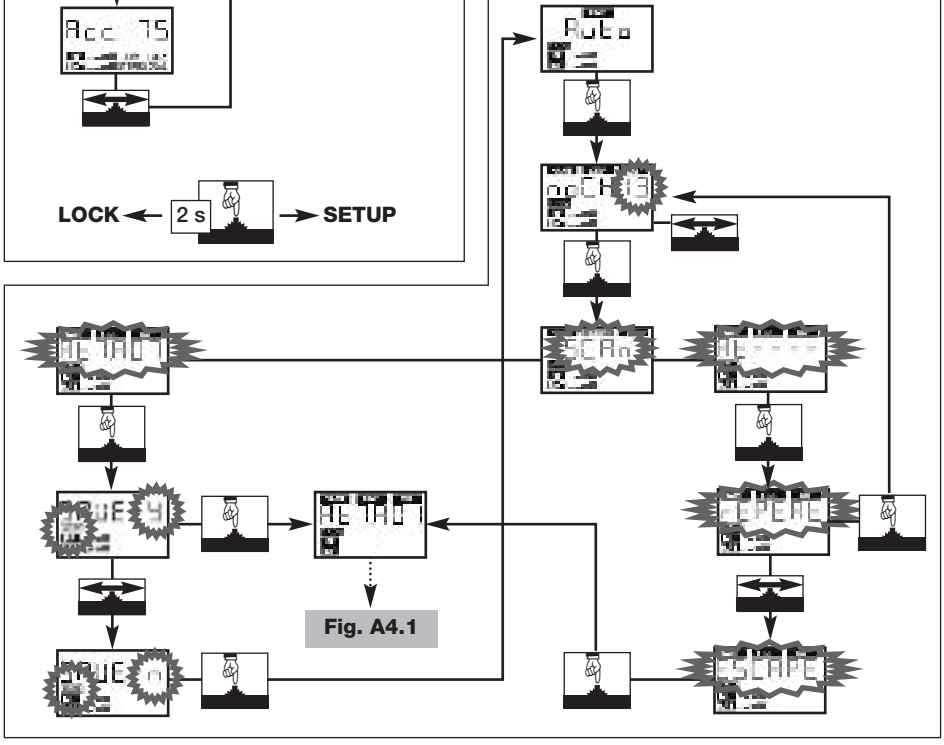


Fig. A4.1 / 3.4.5, 3.6

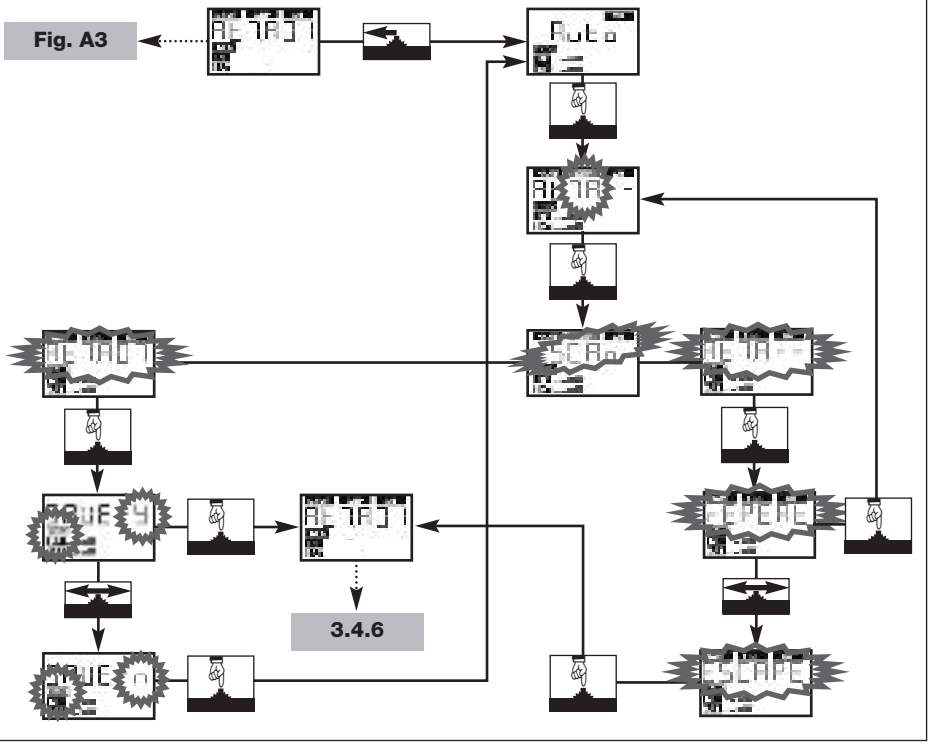


Fig. A4.2 / 3.4.6 A

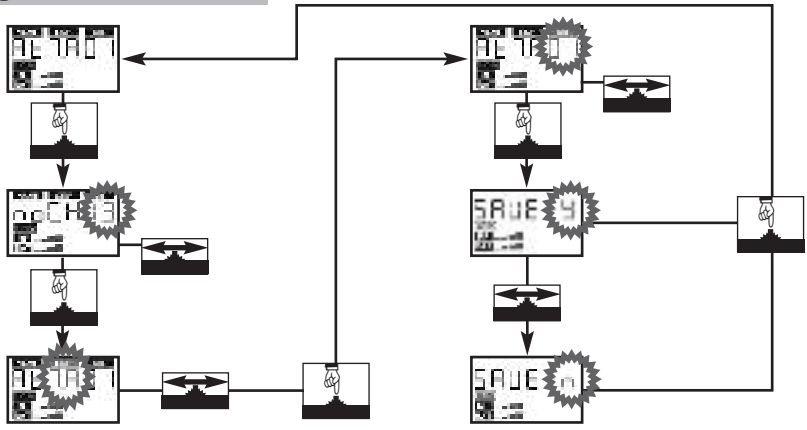


Fig. A5 / 3.4.6 B

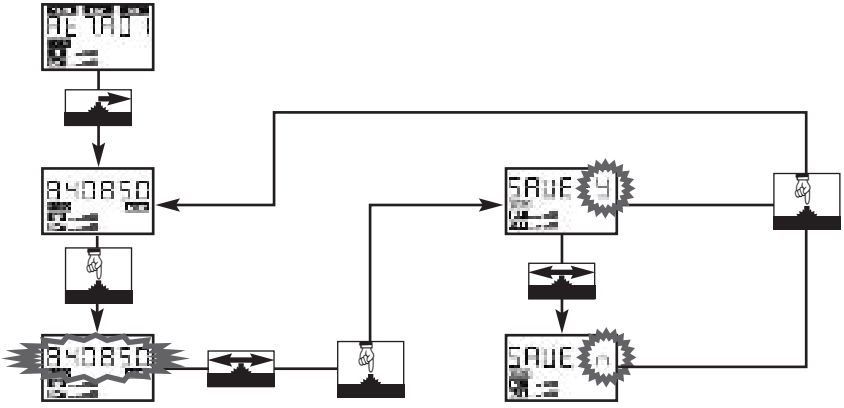


Fig. A6 / 3.5.6, 3.5.7, 3.5.9, 3.6

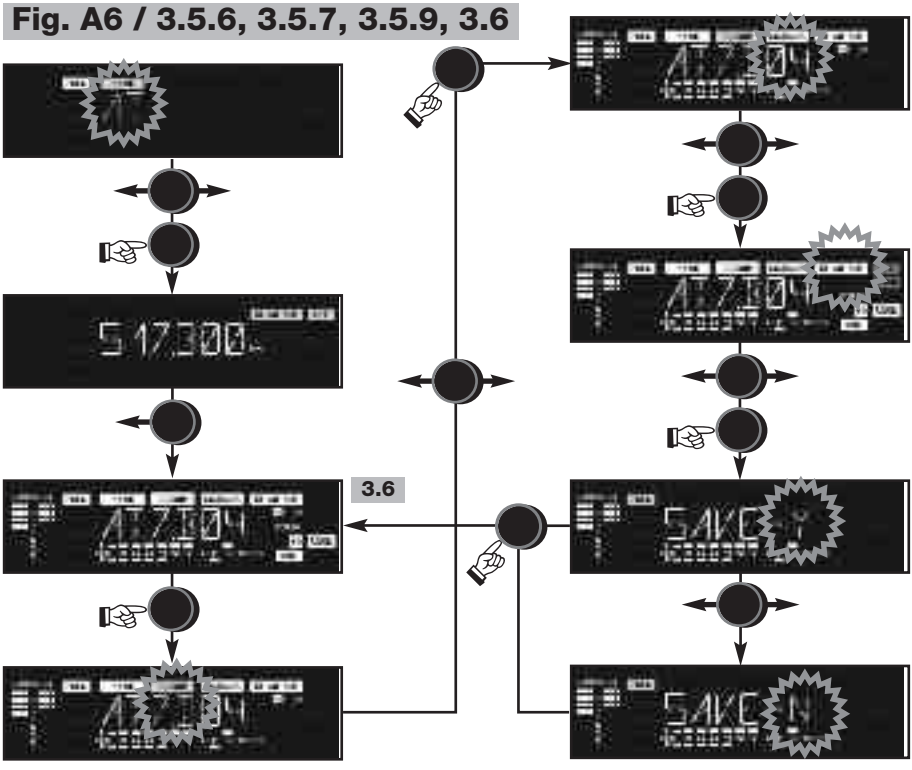


Fig. A7 / 3.5.8, 3.5.9

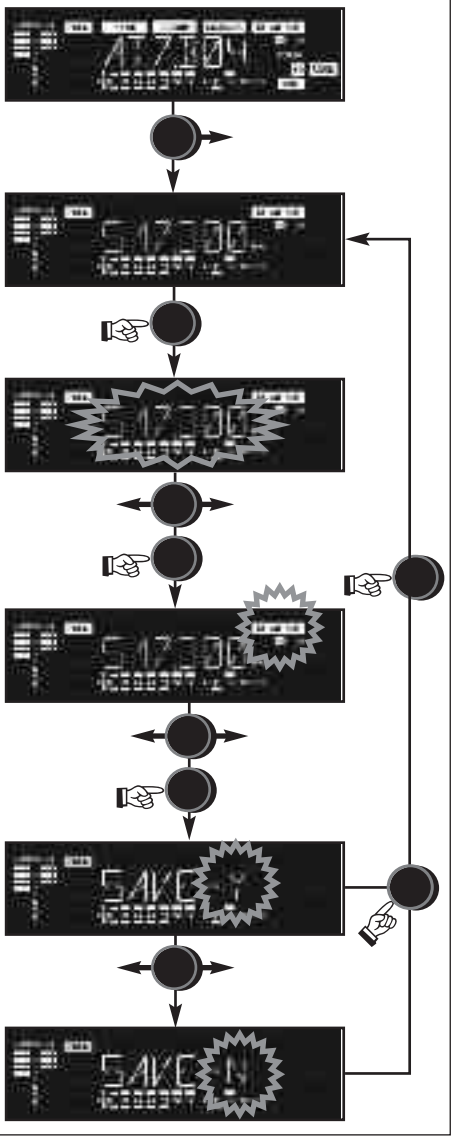


Fig. A8 / 3.5.10

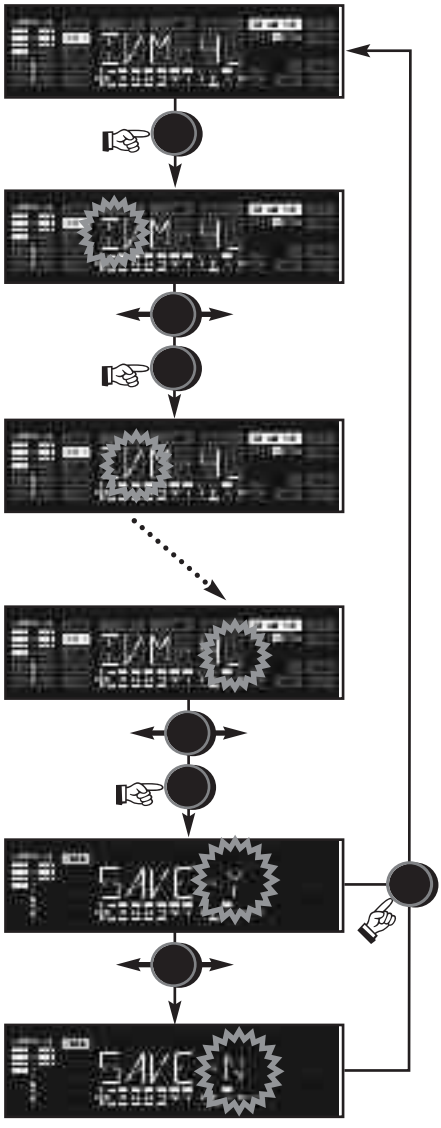


Fig. A9 / 3.5.11

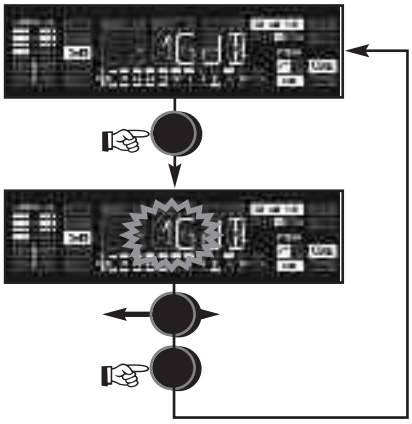


Fig. A10 / 4.1.1

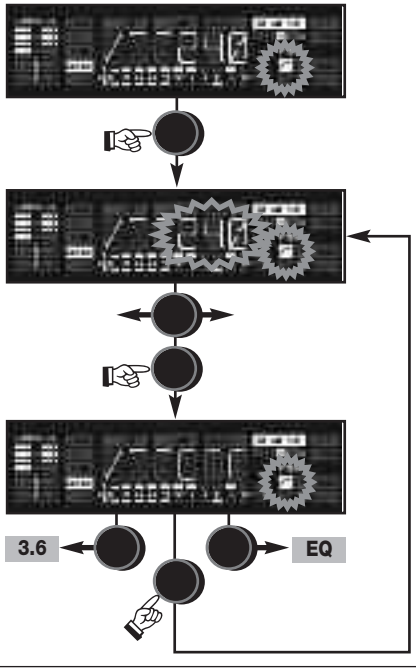


Fig. A11 / 4.1.1

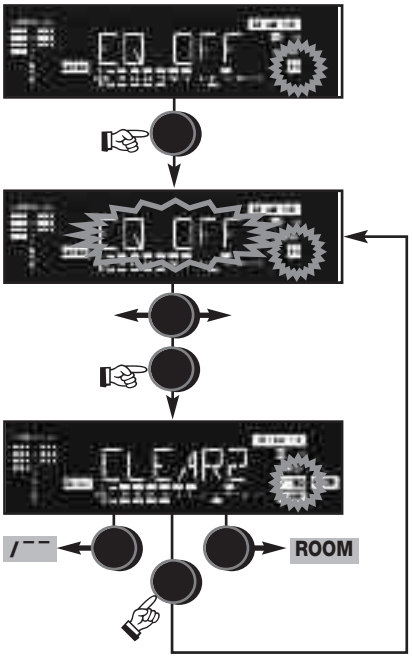


Fig. A12 / 4.1.1

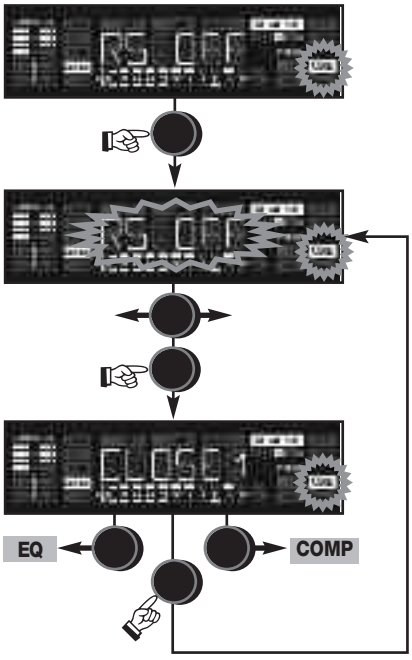


Fig. A13 / 4.1.1

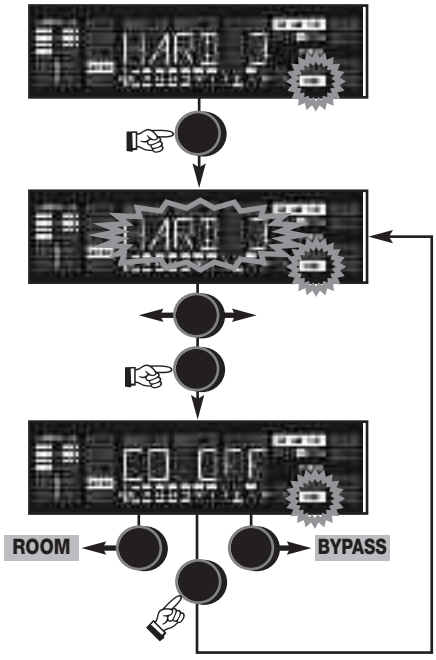


Fig. A14 / 4.1.1

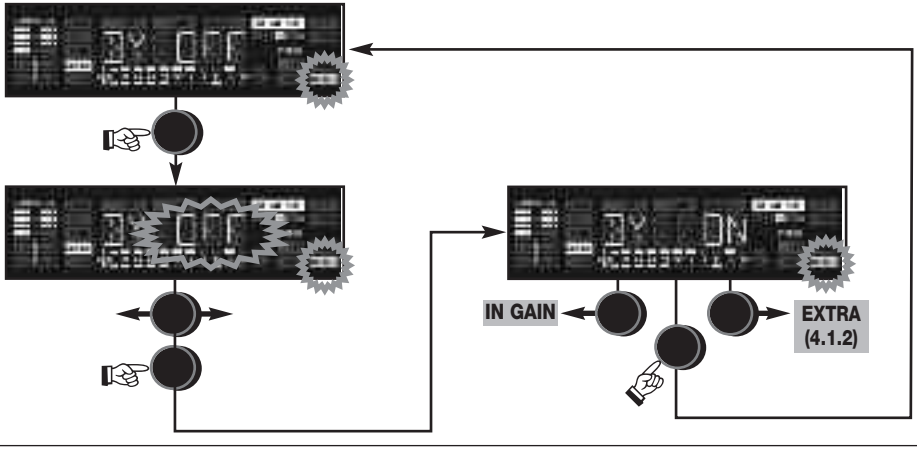


Fig. A15 / 4.1.2

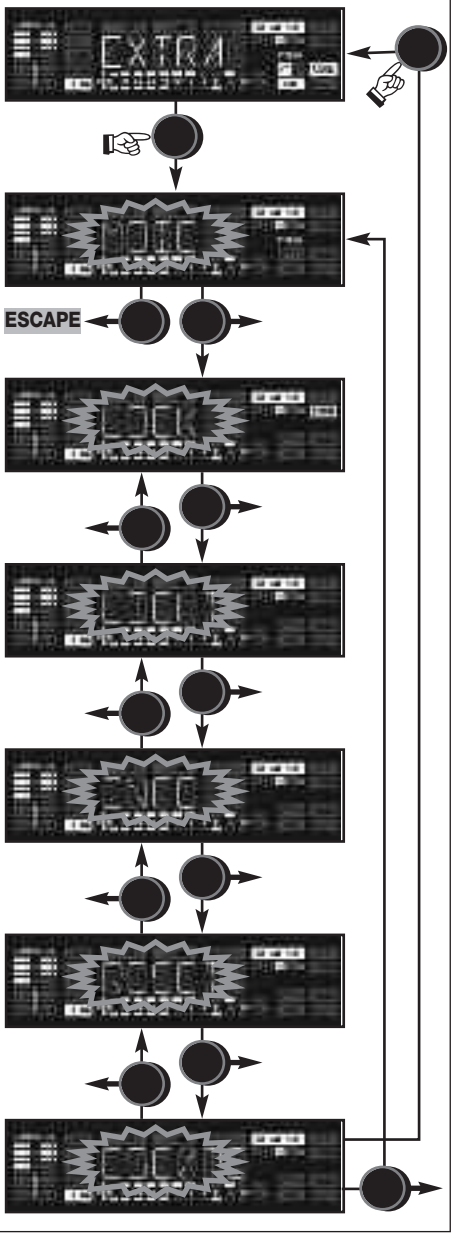


Fig. A16 / 4.1.2

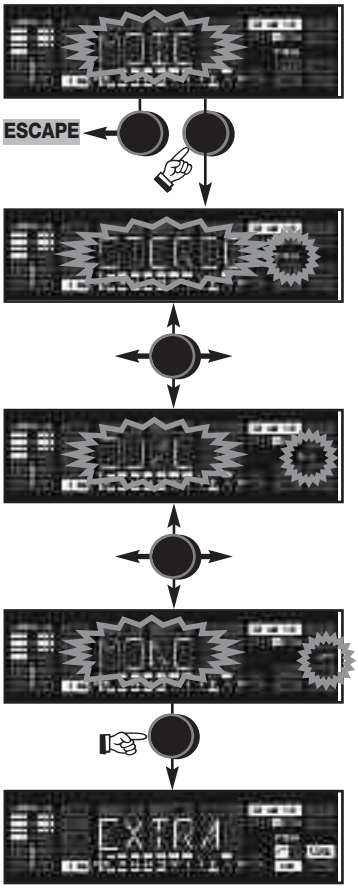


Fig. A17 / 4.1.2

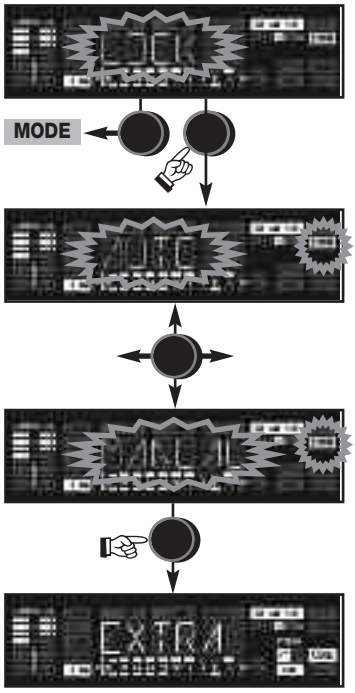


Fig. A18 / 4.1.2

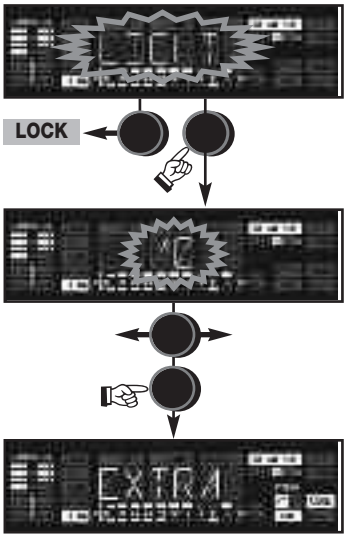


Fig. A19 / 4.1.2

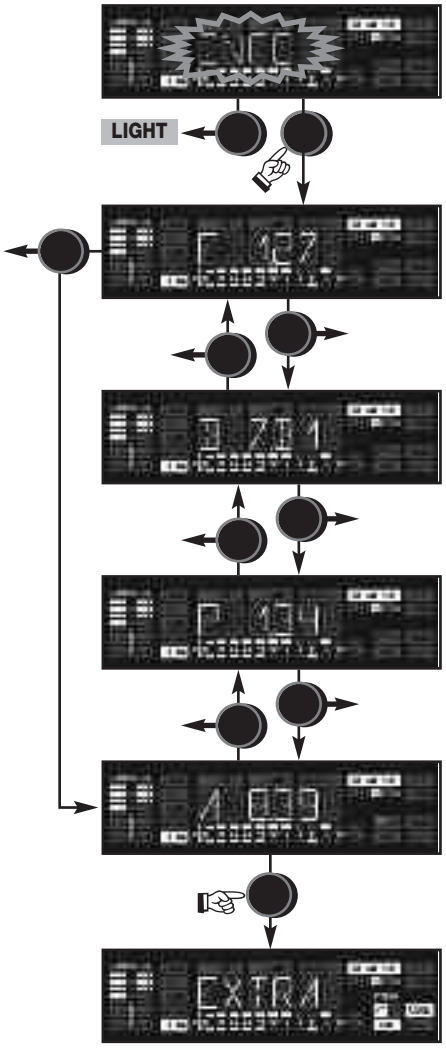


Fig. A20 / 4.1.2

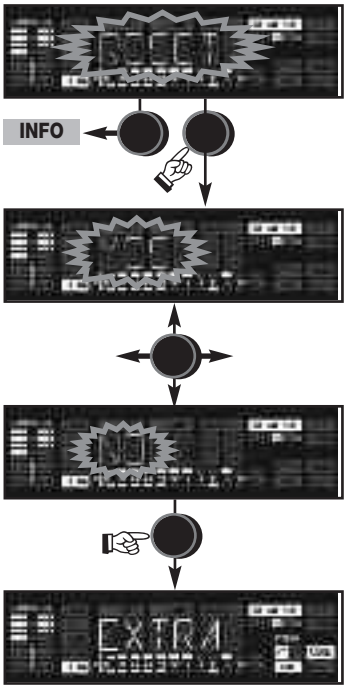


Fig. A21 / 4.1.2

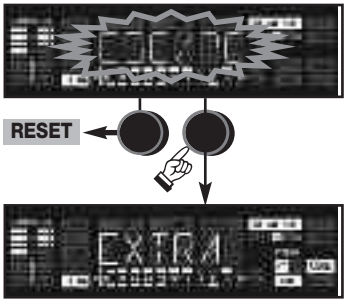


Fig. A22 / 4.2.1

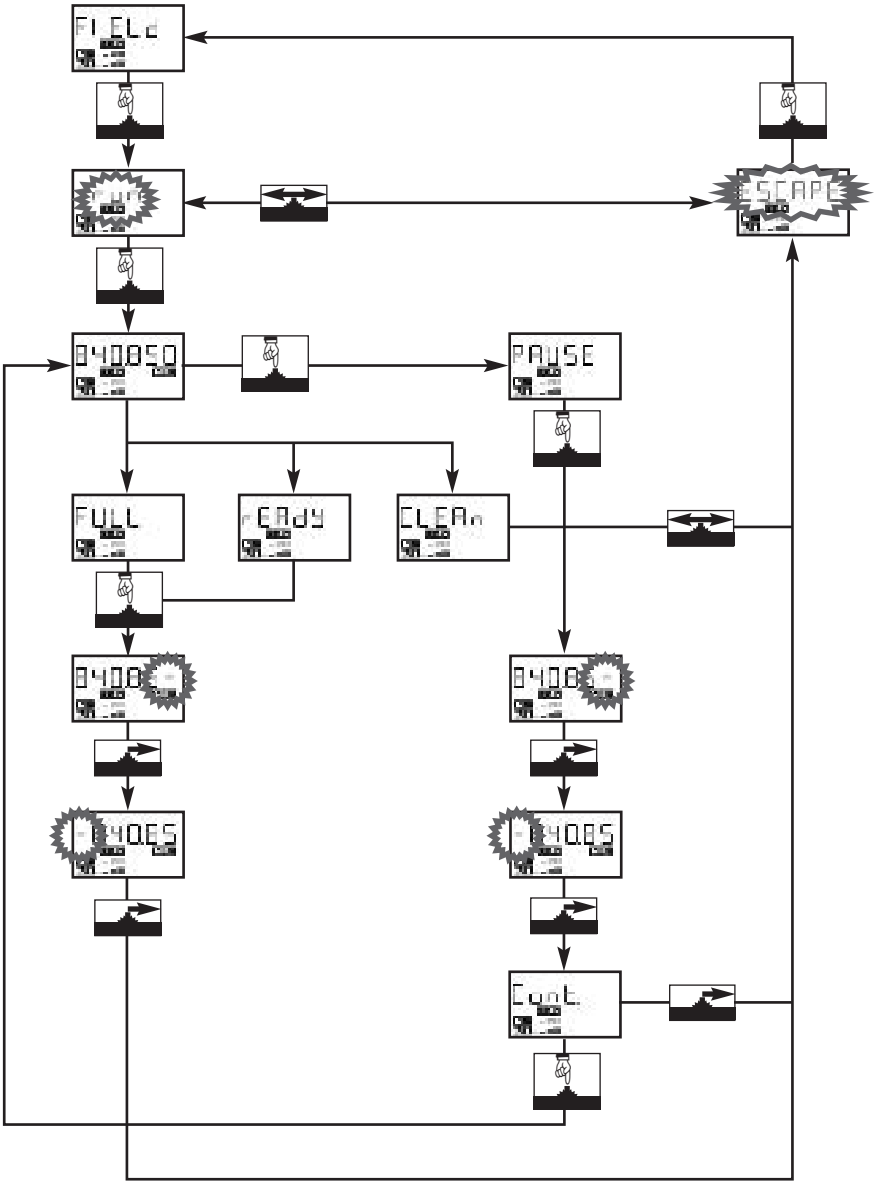


Fig. A23 / 4.2.2

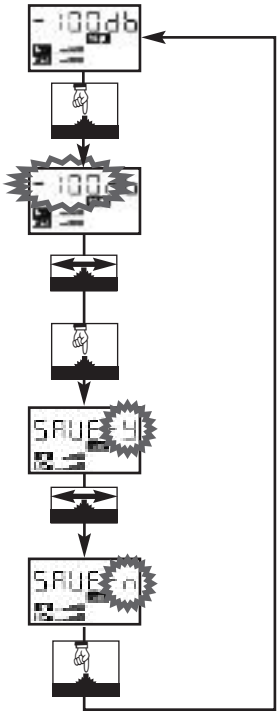


Fig. A24 / 4.2.3

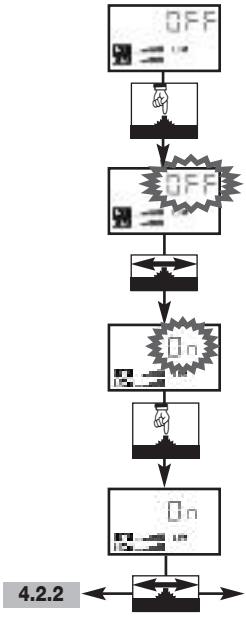


Fig. A25 / 4.2.4

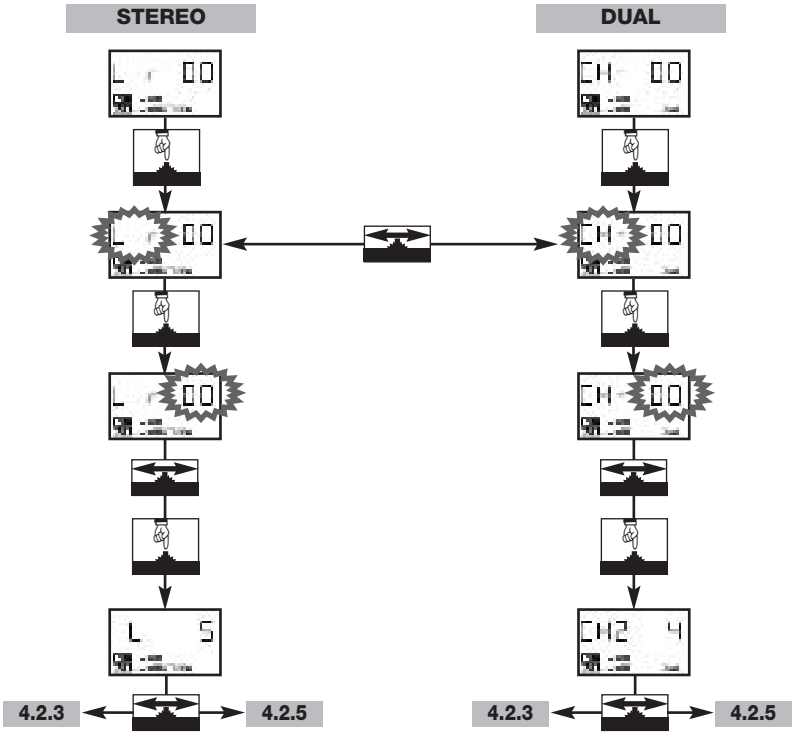
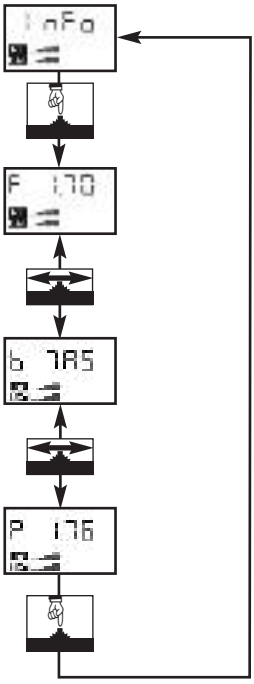


Fig. A26 / 4.2.5



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